Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A rotary tuning element, comprising:

a variable transmission filter, having a transmission wavelength that varies as a function of rotation angle; ~~and~~

a compensation prism having a thickness that varies as a function of rotation angle, the compensation prism usable to alter a cavity length of an external cavity laser to correspond to the transmission wavelength of the variable transmission ~~filter.~~filter;

a first etalon having a transmission wavelength that varies as a function of rotation angle in a manner that corresponds to the transmission wavelength of the variable transmission filter; and

a second etalon having a transmission wavelength that varies as a function of rotation angle in a manner that corresponds to the transmission wavelength of the variable transmission filter,

wherein:

the first and second etalon are arranged in series along a nominal optical path through the rotary tuning element; and

the variable transmission filter, the compensation prism, and the first and second etalons are arranged such that the rotary tuning element is usable to provide nominally mode-hop free tuning when positioned along an optical path of an external cavity laser.

2. (Original) The rotary tuning element of claim 1, wherein the transmission wavelength of the variable transmission filter varies substantially linearly across a diameter of the rotary tuning element.

3. (Currently Amended) The rotary tuning element of claim 2, wherein the thickness of the compensation prism varies substantially linearly across ~~a diameter~~ the diameter of the rotary tuning element.

4. (Currently Amended) The rotary tuning element of ~~claim 1,~~ claim 2, wherein the transmission ~~wavelength~~ wavelengths of the ~~variable transmission filter~~ first and second etalons vary substantially linearly across the diameter ~~varies to provide multiple transmission wavelength cycles around a track concentric with an axis of rotation~~ of the rotary tuning element.

5. (Currently Amended) The rotary tuning element of claim 4, wherein the first and second etalons are wedge air-gap etalons. ~~thickness of the compensation prism varies to provide multiple thickness cycles around a track concentric with an axis of rotation of the rotary tuning element.~~

6. (Original) The rotary tuning element of claim 1, further comprising at least one respective feature that interacts with at least one respective sensor to provide at least one respective signal indicative of at least one respective angle of rotation of the rotary tuning element, wherein the at least one respective feature comprises at least one of a) a trigger feature and b) a rotary encoder scale feature.

7. (Currently Amended) The rotary tuning element of claim 1, wherein the transmission wavelength variation as a function of rotation angle is nominally identical for the first and second etalons. ~~of the variable transmission filter varies to provide multiple transmission wavelength cycles along a direction parallel to a diameter of the rotary tuning element.~~

8. (Currently Amended) The rotary tuning element of claim 1, wherein the rotary tuning element is operably disposed along an optical path between a laser diode and a

reflector in an external cavity laser. ~~thickness of the compensation prism varies to provide multiple thickness cycles along a direction parallel to a diameter of the rotary tuning element.~~

9. (Currently Amended) The rotary tuning element of claim 8, wherein the optical path includes at least one isolation element. ~~claim 1, further comprising an etalon, having a transmission wavelength that varies as a function of rotation angle in a manner that corresponds to the transmission wavelength of the variable transmission filter.~~

10. (Currently Amended) The rotary tuning element of claim 9, wherein the optical path includes at least one lens. ~~etalon is a wedge air gap etalon.~~

11. (Currently Amended) The rotary tuning element of ~~claim 9,~~ claim 8, ~~further comprising a second etalon having a transmission wavelength that varies as a function of rotation angle in a manner that corresponds to the transmission wavelength of the variable transmission filter.~~wherein:

the rotary tuning element is coupled to a rotary motor usable to rotate the rotary tuning element; and

the rotary tuning element has a radius sufficiently large that the motor, coupled to the rotary tuning element, may be disposed adjacent to the laser diode along a direction transverse to the optical path.

12. (Currently Amended) An external cavity laser, comprising

a laser diode;

a reflector; ~~and~~

~~the~~ a rotary tuning element ~~of claim 1,~~ comprising a variable transmission filter, having a transmission wavelength that varies as a function of rotation angle, and a compensation prism having a thickness that varies as a function of rotation angle, the compensation prism usable to alter a cavity length of an external cavity laser to correspond to the transmission wavelength of the variable transmission filter; and

a rotary motor usable to rotate the rotary tuning element,

wherein:

the rotary tuning element is operably disposed along an optical path between the laser diode and the ~~reflector.~~reflector; and

the rotary tuning element includes a pattern that is replicated multiple times around the rotary tuning element as a function of rotation angle and the external cavity laser is operable to provide a variable wavelength output that is mode-hop free and that repetitively varies without the use of reciprocal motion.

13. (Original) The external cavity laser of claim 12, further comprising at least one optical isolation element disposed along the optical path.

14. (Original) The external cavity laser of claim 12, further comprising at least one lens disposed along the optical path.

15. (Canceled)

16. (Original) The external cavity laser of claim 12, wherein:

the rotary tuning element further includes at least one respective feature that interacts with at least one respective sensor to provide at least one respective signal indicative of the at least one respective angle of rotation of the rotary tuning element, wherein the at least one respective feature comprises at least one of a) a trigger feature and b) a rotary encoder scale feature, and the external cavity laser further comprises at least one respective sensor usable to detect the at least one respective feature.

17. (Original) The external cavity laser of claim 15, wherein:

the rotary motor is coupled to an axle that is coupled to the rotary tuning element:

the rotary tuning element has a radius sufficiently large that the motor, coupled to the rotary tuning element, may be disposed adjacent to the laser diode along a direction transverse to the optical path.

18-19. (Canceled)

20. (Currently Amended) The external cavity laser of ~~claim 19,~~ claim 12, wherein the external cavity laser is operable to provide a mode-hop-free variable wavelength output that repetitively varies at a frequency of at least 100 Hz.

21. (Currently Amended) The external cavity laser of ~~claim 18,~~ claim 12, wherein the external cavity laser is operable to provide a mode-hop-free variable wavelength output that repetitively varies over a precisely repeated wavelength range without depending on precise motion control.

22. (Currently Amended) The external cavity laser of ~~claim 18,~~ claim 12, wherein the ~~rotary tuning element includes a pattern that is replicated multiple times around the rotary tuning element as a function of rotation angle and the~~ external cavity laser is operable to provide a mode-hop-free variable wavelength output that repetitively varies at a frequency of at least 1,000 Hz.

23. (Currently Amended) The external cavity laser of claim 22, wherein the external cavity laser is operable to provide a mode-hop-free variable wavelength output that repetitively varies at a frequency of at least 10,000 Hz.